

ABSTRACT OF THE DISCLOSURE

Disclosed is a wide-band fiber amplifier for amplifying C-band and L-band optical signals, including a first amplifying unit including a first amplifying fiber adapted to be (1) pumped in at least one direction (2) amplify both the C-band and L-band optical signals and (3) output Amplified Spontaneous Emission (ASE), a second amplifying unit including a second amplifying fiber adapted to be pumped by amplified ASE and secondarily amplify the amplified L-band optical signal, and an L-band pumping light source including a third amplifying fiber adapted to be pumped in at least one direction while being pumped by the ASE, and output amplified ASE used to pump the second amplifying fiber.